The University of Jordan
Faculty of Engineering and Technology
Department of Civil Engineering

Course Syllabus: Spring 2013/2014

1. Course Name:	**Properties of Concrete**	**Course Number:**	0941351	**Credits:**	3	**Pre/Co–requisite:**	0941242
2. Class schedule	**Time and place**	Section #1: Sun., Tues., and Thurs.: 8:00 am – 9:00 pm Section #2: Sun., Tues., and Thurs.: 9:00 am – 10:00 pm (at Middle Hall. engineering)					
	Office Hours:	Sunday, Tuesday, and Thursday: 10:00 – 11:00 am, or by appointment					
3. Instructor:	**Name:**	**Eng. Shamil Habet**					
	E-mail address:	s.habet@ju.edu.jo					
	Office Phone:						

4. **Textbook:** A. M. Neville, and J.J Brooks, **Concrete Technology**, Second Edition-2010, Prentice Hall.

5. **Course information:**
   - **a.** Three credit hour mandatory course.
   - **b.** Department required course.
   - **c.** Pre/Co-requisite: 0941242- Strength of materials.

6. **Specific goals of the course:**
   - **a. Course Objectives:**
     1. To develop an understanding for properties, types and manufacturing of cement, and properties of aggregates
     2. To develop an understanding for properties and testing of fresh and hardened concrete.
     3. To develop the ability to design concrete mixes.

   - **b. Expected Outcomes:**

     Students will be expected to develop the following skills/understanding upon the successful completion of this course:

     1. Develop an understanding of concrete as a structural material.
     2. Develop an understanding of cement types, manufacturing, properties, hydration, and testing.
     3. Develop an understanding of aggregates classifications, mechanical and physical properties.
     4. Develop an understanding of quality of water and admixtures used in concrete production.
     5. Develop an understanding of concrete mixing, handling, placing, and compacting.
     6. Develop an understanding of fresh concrete properties and testing.
     7. Develop an understanding of hardened concrete properties and testing.
     8. Develop the ability to perform concrete mix design.

7. **Contents:**
   - **a.** Concrete as a structural material.
   - **b.** Cement; types, manufacturing, properties, hydration, and tests.
   - **c.** Aggregates; classifications, mechanical and physical properties.

d. Quality of water; mixing water, curing water, and tests.
e. Mixing, handling, placing, and compacting concrete.
f. Fresh concrete; workability, segregation, bleeding, and tests.
g. Admixtures; air entraining, accelerators, set-accelerators, set-retarders, and water-reducers.
h. Development of strength; curing, influence of temperature, and maturity rule.
i. Strength of concrete; compressive, tensile, flexural, splitting, and tests.
j. Fatigue strength, impact strength, resistance to abrasion, and bond to reinforcement.
k. Elasticity and creep.
l. Deformation and cracking independent of load; shrinkage, swelling, and thermal movement.
m. Permeability and durability; sulphate attack, attack by sea water, acid attack, alkali-aggregate reaction, and corrosion of reinforcement.
n. Concrete mix design.

7. **Minimum student materials:** Class handouts, and engineering calculator.

8. **Instructional methods:**
   a. Lecture/Problem solving sessions.
   b. Case studies.
   c. Quizzes.
   d. Reading assignments.

9. **Assessment Scheme:**

Evaluation	Weight of 100%
Midterm Exam	30%
Short Exam	20%
Final Exam	50%
Total	**100%**

10. **Attendance:** Students are expected to attend EVERY CLASS SESSION and they are responsible for all material, announcements, schedule changes, etc., discussed in class. The university policy regarding the attendance will be strictly adhered to.